

IN THE CLAIMS:

1. (Currently Amended) A chemical composition for obtaining curable elastomeric material from a sulfur-cured, vulcanized elastomeric material, comprising:

sulfur, wherein said sulfur comprises from about 40% to about 65% by weight of said chemical composition;

a mixture of accelerators, including a first accelerator and a second accelerator, wherein a weight percent ratio of said first accelerator to said second accelerator ranges from about 1:1 to about 5:1; and

an activating agent comprising from about 2% to about 6% by weight of said chemical composition.

2. (Original) The chemical composition as recited in Claim 1 wherein said mixture of accelerators includes a third accelerator wherein a weight percent ratio of said first accelerator to said second accelerator to said third accelerator ranges from about 3:3:1 to about 4:1:1.

3. (Original) The chemical composition as recited in Claim 2 wherein said weight percent ratio of said first accelerator to said second accelerator to said third accelerator ranges from about 2.7:2.7:0.6 to about 4.4:1.0:0.6.

4. (Original) The chemical composition as recited in Claim 2 wherein said first

accelerator is N-tert-butyl-2-benzothiazole sulphenamide, said second accelerator is zinc 2-mercapto benzothiazole and said third accelerator is tetramethylthiuramic monosulphide.

5. (Original) The chemical composition as recited in Claim 1 wherein said activating agent includes a zinc salt of a fatty acid, wherein said zinc salt of a fatty acid comprises from about 3% to about 6% by weight of said chemical composition.

6. (Original) The chemical composition as recited in Claim 1 wherein said activating agent includes a mixture of zinc oxide and stearic acid.

7. (Original) The chemical composition as recited in Claim 6 wherein said zinc oxide comprises from about 1% to about 3% by weight of said chemical composition and said stearic acid comprises from about 1% to about 3% by weight of said chemical composition.

8. (Original) The chemical composition as recited in Claim 1 wherein said first accelerator is N-tert-butyl-2-benzothiazole sulphenamide and said second accelerator is selected from the group consisting of zinc 2-mercapto benzothiazole and tetramethylthiuramic monosulphide and said mixture comprises about 34% by weight percent of said chemical composition.

9. (Original) The chemical composition as recited in Claim 7 further including a

third accelerator wherein said first accelerator is N-tert-butyl-2-benzothiazole sulphenamide and said second accelerator is zinc 2-mercapto benzothiazole and said third accelerator is tetramethylthiuramic monosulphide.

10. (Original) The chemical composition as recited in Claim 8 wherein said N-tert-butyl-2-benzothiazole sulphenamide comprises from about 4% to about 10% by weight of said chemical composition, said zinc 2-mercapto benzothiazole comprises from about 4% to about 18% by weight of said chemical composition and said tetramethylthiuramic monosulphide comprises from about 3% to about 5% by weight of said chemical composition.

11. (Original) A process for obtaining curable elastomeric material from a sulfur-cured vulcanized elastomeric material, such curable elastomeric material being capable of being recompounded and recurred into a useful elastomeric product, comprising:

reducing said sulfur-cured vulcanized elastomeric material to particle crumbs; and
placing said particle crumbs and a chemical composition into a mill, said chemical composition comprising;

sulfur, wherein said sulfur comprises from about 40% to about 65% by weight of said chemical composition;

a mixture of accelerators, including a first accelerator and a second accelerator, wherein a weight percent ratio of said first accelerator to said second accelerator ranges from

about 1:1 to about 5:1; and

an activating agent comprising from about 2% to about 6% by weight of said chemical composition;

applying a shearing force to said mixture of said particle crumbs and said chemical composition for a period of time equal to or less than about 2 minutes and at a temperature ranging from about 75°C to about 85°C.

12. (Original) The process as recited in Claim 11 wherein a ratio of said mixture of particle crumbs to said chemical composition comprises about 100 parts of said crumb and between about 1 to 2 parts said chemical composition.

13. (Original) The process as recited in Claim 11 wherein said mixture of accelerators includes a third accelerator wherein a weight percent ratio of said first accelerator to said second accelerator to said third accelerator ranges from about 3:3:1 to about 4:1:1.

14. (Original) The process as recited in Claim 11 wherein said activating agent includes a zinc salt of a fatty acid, wherein said zinc salt of a fatty acid comprises from about 3% to about 6% by weight of said chemical composition.

15. (Original) The process as recited in Claim 13 wherein said first accelerator is N-tert-butyl-2-benzothiazole sulphenamide, said second accelerator is zinc 2-mercapto

benzothiazole and said third accelerator is tetramethylthiuramic monosulphide.

16. (Original) The process as recited in Claim 11 wherein said activating agent includes a mixture of zinc oxide and stearic acid.

17. (Original) The process as recited in Claim 16 wherein said zinc oxide comprises from about 1% to about 3% by weight of said chemical composition and said stearic acid comprises from about 1% to about 3% by weight of said chemical composition.

18. (Original) The process as recited in Claim 11 wherein said first accelerator is N-tert-butyl-2-benzothiazole sulphenamide and said second accelerator is selected from the group consisting of zinc 2-mercapto benzothiazole and tetramethylthiuramic monosulphide and said mixture comprises from about 34% by weight percent of said chemical composition.

19. (Original) The process as recited in Claim 18 further including a third accelerator wherein said first accelerator is N-tert-butyl-2-benzothiazole sulphenamide and said second accelerator is zinc 2-mercapto benzothiazole and said third accelerator is tetramethylthiuramic monosulphide.

20. (Original) The process as recited in Claim 19 wherein said N-tert-butyl-2-benzothiazole sulphenamide comprises from about 4% to about 10% by weight of said chemical

composition, said zinc 2-mercapto benzothiazole comprises from about 4% to about 18% by weight of said chemical composition and said tetramethylthiuramic monosulphide comprises from about 3% to about 5% by weight of said chemical composition.